



Figure 1 Months with high and low seasonal factors (with possible reasons for prominent months).

sales, and June, July, and August, a "high" season.

Possible causes of seasonality include the effect of climate on smoking behaviour (low in cold weather and high in mild weather, especially in view of now widespread indoor smoking restrictions across the USA), the timing of tax changes (December-January or June-July), the timing of the new fiscal year (June-July), the timing of school year (August-June), and the timing of quitting efforts tied to New Year's resolutions (December-January). In the obvious extension to this research, the determinants of this potentially important statistical phenomenon will be analysed in detail.

The present findings demonstrate that sales of cigarettes in the USA have a strong seasonal component. This has potential implications for the timing of cessation initiatives and other time dependent policies. The phenomenon of seasonality could hold the key to significant advances in tobacco control and in the management of a leading public health problem.

S Chandra

Graduate School of Public and International Affairs,
University of Pittsburgh, Pittsburgh, Pennsylvania,
USA

F J Chaloupka

Department of Economics, University of Illinois at
Chicago, Chicago, Illinois, USA

Correspondence to: Siddharth Chandra, GSPIA,
3R25 Wesley W Posvar Hall, University of
Pittsburgh, Pittsburgh, PA 15260, USA;
schandra@pitt.edu

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Way-out developments at BATCO

Working in tobacco control, it is easy to get the impression that the tobacco industry is a united front, with all parties carefully avoiding internal divisions that might undermine the greater struggle against the "antis". However, tobacco industry documents that have been made public as a result of litigation in the USA frequently reveal ruthless competition for market share, as well as intense suspicion about competitors' activities. This was brought home to us recently when reading a 1977 document on "developments in the scientific field" by Dr Sydney J Green,

then British American Tobacco's (BAT's) senior scientist for research and development.¹ After several pages of unremarkable reports on industry and external research on low tar cigarettes and smoking and health, Green informed his readers about two "way-out" developments at BAT:

- Way-out development 1: "A way-out development is that of compounds (such as etorphine) which are 10,000 times as effective as analgesics [such] as morphine and which are very addictive. It is theoretically possible (if politically unthinkable) to add analytically undetectable quantities of such materials to cigarettes to create brand allegiance. But this thought may suggest the possibility of such compounds occurring naturally."

We are grateful to Dr Green for clarifying what "brand allegiance" really means for the tobacco industry.

- Way-out development 2: "Another way-out development, which arises from work done in a quite different area, is that it would now be quite feasible and quite inexpensive to produce an unacceptable off-taste in cigarettes from some factories for a prolonged period without approaching nearer than half to one mile."

In the same spirit of scientific curiosity which no doubt motivated the BATCO researchers, we would be very interested to know the formula for this substance.

On a more serious note, while we were not able to come up with any plausible candidates for a substance that could make way-out development 2 feasible, we are concerned that Green was right about the feasibility of adding etorphine or some other addictive substance to cigarettes.

Green's report followed an earlier memo from Kieth D Kilburn to CI Ayres,² expressing

concern about what BATCO's competitors might be doing to their "low delivery cigarettes" (that is, low machine measured tar and nicotine *yield* cigarettes) in order to create brand allegiance. Kilburn proposed that a regular etorphine dose of as little as 0.2 µg per day would be sufficient to create an addictive craving for the source. He also claimed that the required delivery of around 7 ng per cigarette (or around half the delivery of benzo[a]pyrene) would be analytically difficult to measure.

Etorphine is a powerful drug with heroin-like effects, which include respiratory failure in the case of overdose. It may be more familiar to readers as "elephant juice"—a veterinary drug with such high potency that a tiny quantity injected from a dart can immobilise an elephant.

The dangers of etorphine to humans have been dramatically demonstrated in accidents during veterinary use, as there have been fatal overdoses to veterinarians attempting to dart large unruly animals. Reputedly, a mere scratch from an etorphine dart has been sufficient in some cases to provide a fatal overdose. As a consequence of these fatalities, veterinarians who are registered to use etorphine must now have an assistant standing by with a dose of an etorphine antagonist in hand.

These observations on the dangers of etorphine underscore Green's and Kilburn's essential point: very low concentrations of certain psychoactive substances may be sufficient to produce important effects, including addiction. Fortunately, etorphine has become much more readily detectable in recent years than Green and Kilburn suggested was the case in 1977, because forensic toxicologists have put considerable effort into developing highly sensitive detection methods. However, in a world market with minimal regulation of cigarette additives and limited testing capacity outside the industry's own laboratories, we should remain concerned about what the tobacco industry might be willing to do in order to create "brand allegiance".

W King, R Borland

VicHealth Centre for Tobacco Control, the Cancer Council Victoria, Victoria, Australia

M Christie

Department of Pharmacology and The Medical Foundation, University of Sydney, Sydney, New South Wales, Australia

Correspondence to: Bill King, VicHealth Centre for Tobacco Control, the Cancer Council Victoria, 1 Rathdowne St, Carlton, Victoria 3053, Australia; bill.king@cancervic.org.au

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How to critique consultancy reports?

The recent proposals for smoke-free legislation in many countries have spawned a multitude of studies which attempt to predict the financial impact of such legislation. As described by Scollo *et al.*¹ in this issue of *Tobacco Control*, many of these studies fail to achieve

basic quality standards and this is more likely when the tobacco industry funds the study. However, findings from such flawed studies can influence policy makers and it is essential that public health advocates have strategies to counter their impact.

In Hong Kong in 2001, the government proposed to make all workplaces, including catering venues, smoke-free.² A consultancy report for the catering industry, funded by the tobacco industry, was published shortly after and concluded that the legislation would cause catering industry revenues to drop by 10.6% leading to job losses. This report was based on a survey of customers to catering venues, self reported spend on eating and drinking out, and self predicted changes in the event that catering venues were made smoke-free. Since the methods used were not made clear in the report, we had to attempt to validate or refute the report mainly by an assessment of its findings. We found the following questions useful:

(1) Was the sample used for the consultant's survey representative of the population being studied (customers of catering venues)? Since we could not determine if sample selection was done properly, we had to look at sample characteristics. The prevalence of smokers was much higher than in other survey data indicating a bias in the sample.

(2) Did the consultant's data, when extrapolated/aggregated, agree with other standard data sources—for example, government statistics? Much of the basic data collected by the consultants was not disclosed in their report but, to make their case, they had to present some—for example, average weekly spends in the different types of catering venues. From these data we could estimate (a) expected weekly revenue in the catering industry, (b) approximate market shares for the different types of venue, and (c) weekly spend on eating out per household if the consultant's data were valid. Each of these estimates was quite implausible when compared with data from the census and other government sources.

(3) Could the consultant's findings be reproduced to shed light on the methods used? Using a new set of data based on random sampling, we tried to recreate the consultant's findings by deliberately introducing biases and incorrect aggregations which we suspected were present in the consultant's methods. In this way we were able to produce an almost identical set of results from the new data. On the other hand, when we analysed the new data in an appropriate fashion, we predicted a rise of 5% rather than a drop of nearly 11% in catering revenues.

The best means of influencing policy on smoke-free catering venues is to use objective outcome measures and data collected both before and after the intervention, as recommended by Siegel and listed by Scollo *et al.*¹ The study we were able to refute would have failed Siegel's quality criteria. However, since much of the lobbying against smoke-free legislation is done before such policies are put in place, local objective, before and after data are inevitably not available. In our case, presenting our rebuttal of the consultant's findings along with the evidence accumulated from overseas studies that smoke-free policies do not harm catering industry revenues, greatly reduced the harm that the consultant's report could have done to the proposed legislative process. Our approach may be helpful to policy makers faced with a similar situation in their own locality.

S M McGhee, A J Hedley, T H Lam

Department of Community Medicine, University of Hong Kong, Hong Kong

Correspondence to: Dr Sarah McGhee, Department of Community Medicine, University of Hong Kong, 21 Sassoon Road, Hong Kong; smmcghee@hkucc.hku.hk

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Interest in nicotine replacement therapy among pregnant smokers

In the UK nicotine replacement therapy (NRT) may now be considered for those pregnant women who cannot otherwise stop smoking.¹ However, very little research has been carried out with NRT during pregnancy and the level of interest in using NRT is not known.² This letter reports the results of a survey to assess the level of interest in using NRT among pregnant smokers.

Across a seven month period pregnant smokers were identified using the patient administration system of a large district general hospital in south west London. Ethical approval was obtained and participants gave verbal consent via the telephone. Women identified as smokers at their first antenatal booking visit were telephoned within one week of this visit and invited to take part in the survey. The interview took place during the initial telephone call or during a further call within 48 hours of the initial call. All statistical tests were two tailed.

Demographic information was obtained from patient records. All the women were asked "Can I just check, are you still smoking at the moment?" ("yes" or "no"). Those still smoking were asked "About how many a day would you say you are smoking at the moment?", and "Are you thinking at all about stopping?" ("yes" or "no"). Those expressing an interest in stopping were asked "Do you think you might want to stop in the next month, or might you prefer to try a bit later on" and "Would you be interested in receiving some help from the hospital with stopping?" ("yes" or "no"). Women stating an interest in receiving help were asked "Some forms of nicotine replacement therapy (NRT) can now be used by pregnant smokers who feel they wouldn't be able to stop without it. Would you choose to use NRT to help you to stop smoking?" ("yes" or "no").

Of the 207 smokers interviewed (fig 1) the large majority were not in professional/managerial occupations (85.0%, 176/207), were white (75.8%, 157/207), and attended their first antenatal booking visit in the hospital (66.7%, 138/207) rather than in the community. The mean (SD) duration of pregnancy was 18.6 (5.6) weeks and the mean (SD) reported number of cigarettes smoked per day was 7.3 (6.1).

Of those women reporting that they were thinking about stopping smoking 44.7% (67/150) expressed an interest in using NRT. Interest in NRT was higher among women who reported smoking more cigarettes per day (analysis of variance (ANOVA): $F = 7.6$,